The IEEE 802.3 Ethernet Working Group requests that you reject TIA request 8-30-2016_TCC for the following reasons:

- The NFPA Standards Council has directed the Correlating Committee to establish a task group and a TIA is one logical output of this task group
- The UL fact finding report states that ampacities up to 0.398A on every conductor does not result in bundled cable heating issues
- We agree that the lack of an ampacity is an emergency
- An ampacity as low as 0.3A per conductor is not an appropriate threshold to address the emergency.
- Limiting ampacity as low as 0.3A per conductor is an undue burden on existing systems and unnecessarily restrictive
- The solution needs to accurately account for differences in current per conductor due to unbalance in determining the ampacity. This is properly an item for the task group to determine.

We encourage the panel to reject the proposed TIA and proceed with the formation of a Task Group as the standards council directed to investigate and remedy the situation properly.

Following is a detailed discussion of the stated points:

First, and foremost, we would like to acknowledge that the NFPA Standards Council has directed the Correlating Committee "to establish a broad based task group of CMP and non-CMP members to consider all appropriate actions including, but not limited to, the filing of inputs to the code's next revision cycle and/or the filing of a TIA, if appropriate. Such task group should specifically include representation of those with knowledge and experience in telecommunications and Ethernet communications." We respectfully request that the process as directed by the NFPA Standards Council be allowed to run its course. Consideration of this TIA is premature and would circumvent that process.

While we agree that the lack of an ampacity is an emergency, we assert that 0.3A on any conductor is unnecessarily restrictive. The results in the Fact Finding Report submitted by SPI are sometimes truncated to 0.3A/conductor. The report actually recommends that an ampacity of 0.398A avoids overheating issues (see page 22 of the report). Further, there is no source which cites an emergency issue when a current of 0.3A is exceeded on fewer than all 8 conductors in a cable.

The level of 0.3A, even in the case where all conductors are energized, is not an appropriate threshold to address the emergency. The UL/SPI report states that overheating does not occur at 0.3A, and then cites an example where "Even under extreme installation conditions using 576 cables very tightly packed into an open wire cable tray" the claimed 30 degree rise would not occur until a higher amperage. The data tables within the report all show headroom between the threshold heating level and the heating observed at 0.3A. Based on the data in the UL/SPI report, it identifies a 33% higher amperage (0.398A) to be the safe level, as noted in the tables on page 22 and in Appendix C.

Additionally, standardized systems exceeding 0.3A on a single conductor have existed for at least seven years, and, for example, are allowed in IEEE Std 802.3at-2009 (now Clause 33 of IEEE Std 802.3-2015), where a single conductor can exceed 0.3A under many normal operating conditions. These systems have been deployed in the millions over many years without any record of loss. Please note IEEE Std 802.3at-2009 compliant PSEs are allowed to provide currents up to 0.352A on a single conductor (a

parameter known as ILIM), before the PSE must remove current, inherently constraining the current delivered.

On a technical basis, considering that the Fact Finding Report, existing systems, and article 725.144: 1) are inconsistent with details in the cited Fact Finding report and Table 725.144 and 2) show that a limitation of 0.3A on any conductor would impose an undue burden on existing, widely deployed systems with no demonstrated record of loss; we recommend rejecting the proposed TIA.

Finally, we note, that if the TIA were written to reflect the proper ampacity and an RMS average current on the conductors, or to allow sufficient ampacity to be consistent with existing systems and research, it might be considered to properly identify the emergency, and then properly identify the remedy.